Amendment to the Specification

[0003] (Currently Amended) The growing market of ideas that require personal power ranges from electronic and telecommunication equipment (e.g., cellular telephones and laptop computers) to small, mobile reconnaissance robots that can ~~safety~~ safely explore potentially hazardous environments. Many of these lightweight devices demand tens of Watts of power for durations on the order of tens of hours, thereby driving power source considerations toward those power sources with the highest energy density.

[0004] (Currently Amended) The energy density of burning hydrocarbon fuels is difficult to surpass when an oxidizer stream is plentiful, as with combustion in ambient air. Assuming no energy cost for the oxidizer, for example, typical hydrocarbon fuels can provide a power density of 45 MJ/kg, while a modern rechargeable battery can only manage a mere 0.5 MJ/kg. Even fuel cells, while highly touted for their efficiency and simplicity, only provide power densities comparable to batteries, i.e., 0.7 ~~MK/kg~~ MJ/kg. Perhaps more importantly, the energy per unit volume of electrochemical devices is quite low because they rely on surface reactions, while combustion is a volumetric energy release process. Consequently, if the ultimate goal of a power device is propulsive or heating, direct combustion will have clear advantages. Even when electrical power is desired, where the combustor dimensions are often a small fraction of the volume occupied by the conversion hardware, if high power density is needed, combustion technology tends to still hold clear advantages.

[0040] (Currently Amended) *Gas and liquid fuel* – In the next experiments, both gas and liquid fuels were used simultaneously. To ignite the flame, a bit of liquid fuel was fed into the base 115 of the combustion tube 112. The fuel/air mixture was then flowed into the combustion tube 112 and the flame was ignited at the exit 113 of the tube 112. The flow rates were 8 liters per minute for air, 0.25 liters per minute for methane, and 25cc per hour for ~~methane~~ methanol. The flame was fed by both some liquid picked up as the air flowed past the pool at the base of the combustor and by the gas. When the gas fuel flow rate was decreased, the flame 124 jumped into the tube 112, where it burned in a confined state within the combustion area 121, as shown in Fig. 5.